

MICROFIBRILS IN THE XYLEM OF BLECHNUM VIVIPARUM. —

Cellulose forms the framework of plant cell walls by a system of microfibrils (as well as other molecular shapes) in which various substances are incrustated. The presence of microfibrils can be demonstrated by chemical removal of the incrusting substances or, rarely, by their actual appearance in the lumen of pits, particularly in relation to tori and plasmodesmata of some angiosperms and conifers. After the formation of secondary walls in some Gnetaceae and Coniferae (Warchop et al., *Holzforsch.* 13:115–120. 1959), a sort of “tertiary growth” appears in the shape of warts or of fibrils, either isolated, at random, or in a margo (a marginal reticulate that fuses at or near the center of the torus), and sometimes obliterates the lumen (Butterfield & Meyland, *Three-dimensional Structure of Wood*, p. 72. 1980).

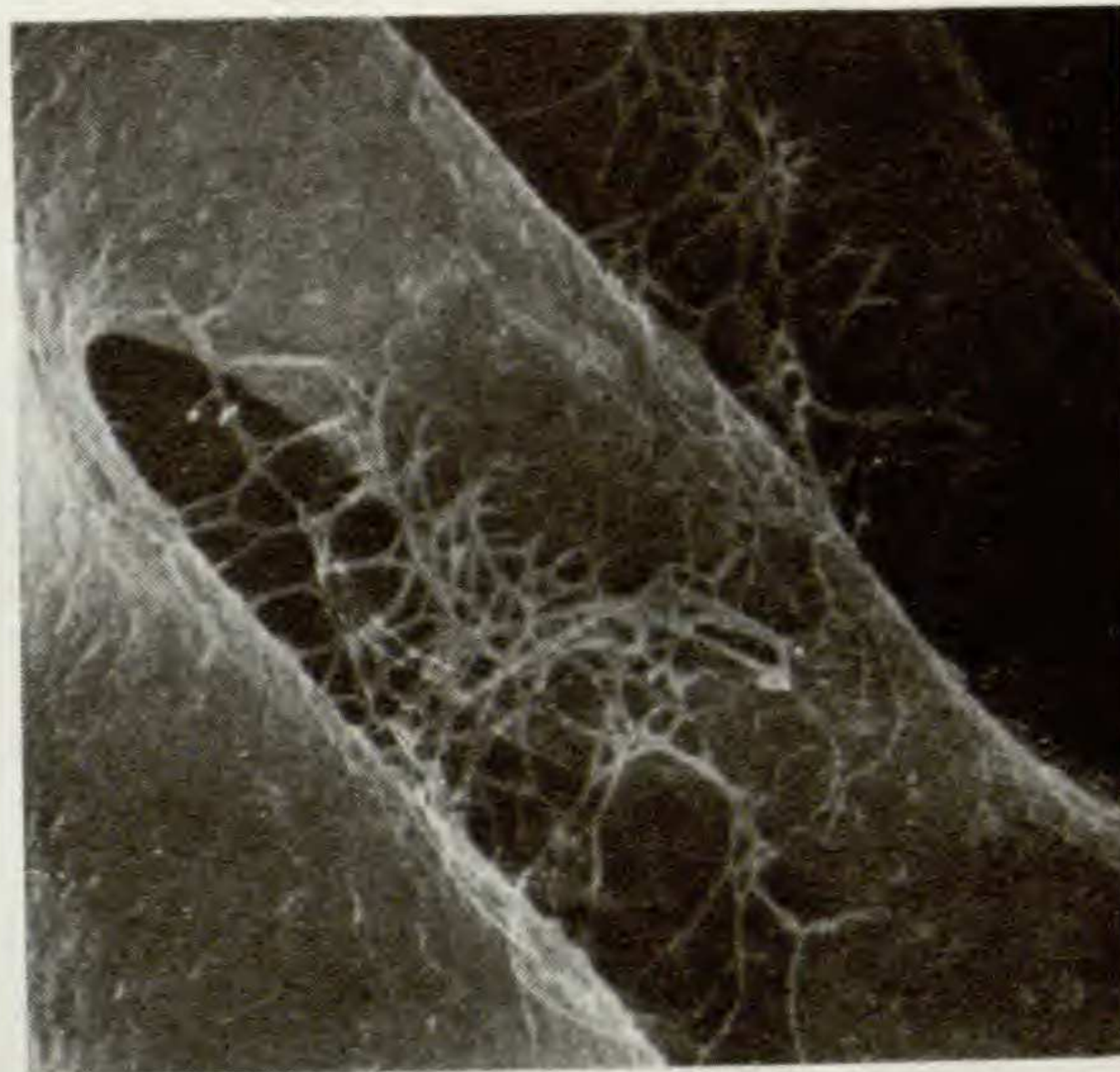


FIG. 1. Isolated, sporadic xylem elements in *Blechnum viviparum* interpreted as secondary vessels. Two pits showing a loose net of microfibrils, $\times 10,000$.

In the material of *Blechnum viviparum* (Broadh.) C. Chr. studied and reported by Montiel and Guevara (*Rev. Biol. Trop.* 27:171–176. 1979) and reinterpreted by Gómez (*Brenesia* 18:253–258. 1980), some of the pits show what in my opinion are microfibrils (*Fig. 1*) which, to my knowledge, have either been overlooked or have not yet been reported from vascular cryptogams where xylem elements or secondary growth have been detected. It must be pointed out that the microfibrils reported here seem somewhat thicker than those usually found in higher plants and, unlike those, ours are sporadic and quite scattered throughout the material.

The presence of microfibrils in ferns is interesting from a phylogenetic point of view inasmuch as they represent another intermediate character between the tracheid and the coniferophyte-type element. Furthermore, the presence of loose microfibrils partially obliterating the lumina between crassulae, projecting from the middle lamellae to the secondary walls in a pteridophyte, seems to support the idea of a coherent, organized constitution of cellulose in the primary membranes as proposed by Frey-Wyssling et al. (*Planta* 47:115–126. 1956) and Mühlethaler (*Biochem. Biophys. Acta* 5:1–9. 1950), at least in these primitive plants.—Luis D. Gómez P., *Museo Nacional de Costa Rica, Apartado 749, San José, Costa Rica.*